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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/777,557	12/30/96	WILDE	D 0527-VDISK

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EXAMINER
NGUYEN, T

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No. 08/777,557	Applicant(s) Daniel Wilde
Examiner Thu Nguyen	Group Art Unit 2772



Responsive to communication(s) filed on Feb 26, 1999

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-21 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 7 and 8

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad (U.S Patent No. 5553200) in view of Smith et al (U.S Patent No. 5,644,661).

As per claim 1, Accad teaches a method for dithering color in a graphics system that displays a group of pixels. The color of the pixels is represented by color shades having fewer than eight bits. The method comprises the steps of:

Generating an eight bit color shade for each pixel representing the desired color for the pixel (col.7, lines 60-64);

Truncating the desired eight bit color shade to obtain a truncated color shade (col.8, lines 4-8).

Generating FRAC and ramp value $I''(i,j)$ for each pixel, the ramp value encodes a discrepancy between the desired eight bit color and the truncated color shade value (col.12, lines 1-45).

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Accad does not teach a binary ramp value having different probabilities which reflect proximity to the truncated color shade value.

Smith et al teaches an image interpolation method which uses color value of primary pixels to generate color value for intermediate pixels (col.4, lines 13-18). To determine the pixel value for intermediate pixels between the primary pixel's color value, the probability of the intermediate pixels holding a color value of a primary pixels is first calculated (col.5, lines 7-36 and col.6, lines 52-61) and the number of pixels holding the value of the primary pixel is determined. The probability value is calculated using the distance between the intermediate pixel and the primary pixels.

Smith et al and Accad are combinable because Accad teaches using a FRAC value $I''(I, j)$ to determine the distance between an intermediate pixel and the nearest two primary color pixels (col.11, lines 54-65 and col.12, lines 20-39) and Smith et al teaches determining the probability of number of pixels having a primary color using the distance between the primary colors. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply finding the probabilities which reflects proximity of intermediate pixels value to the true shade value taught by Smith et al to the dithering data compression method taught by Accad. The motivation for this would have been to aid selecting the intermediate pixel values such that the number of pixels holding the primary color value follow the probability; and the integration of the colors between the two primary color level creates the color near to the original 8 bit color value.

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As per claim 2 and 3, Accad teaches a general way to create the color bit truncation, the truncated bit can be any number of bits (col.8, lines 1-8). Accad, therefore, includes the number of truncated bits are three least significant bits or fewer than two least significant bits.

As per claim 4 and 5, Accad teaches a look up table, the output from the table is used to select the color shade value for a pixel. Each pixel has an x, y address and the address is used to determine the color shade value of the pixel (col.13, lines 21-36 and 61-67; col.14, lines 1-24). Even though the look up table taught by Accad provides the color shade value for the pixel instead of the selected bit from the ramp value as claimed, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that the purpose of selecting a bit from the ramp value is to determine the color shade value of a pixel, the claimed look up table, therefore, performs the same function as the look up table taught by Accad.

As per claim 6, refer to discussion in claim 1 above for the claimed step a-d.

Accad, further, teaches producing addend value for incrementing the first color shade value (d) and incrementing the first color shade value by addend value to produce a second color shade value (d+1) and selecting the first color shade value or second color shade value to determine the color of each pixel (col.13, lines 21-35).

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As per claim 7-9, refer to discussion in claim 1, 4-5 and 6 for the ramp value , the selecting first or second shade value and look up table as claimed.

As per claim 10-11, even though Accad does not explicitly teach the overflow condition, the claimed overflow signal would have been included in the selecting first or second color shade steps as taught by Accad (col.13, lines 21-35).

As per claim 12-21, since Accad teaches a method to provide color bit representation having fewer than eight bits, as discuss in claims 1-11 above, he must provide the apparatus to perform the function as claimed.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 6 and 12 have been considered but are moot in view of the new ground(s) of rejection.

In response to the second argument on page 9 “Second, the truncation ... This is much different than the claimed step”. In fact Accad really does not teach many more computation steps than the present invention. The computation taught by Accad appears complicated because Accad teaches a general method for data compression which is usable not only for two or three bit truncation as taught in the present invention but also for any number of bit truncation. Also, because Accad presents the invention in decimal base, this result in the indexing concept. The only

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different between the present invention and Accad is the way the invention is represented.

Whereas the current invention is presented using binary computation, Accad presents the invention using decimal computation. However, since representing data computation in binary format and converting data from binary and decimal representation would have been well known to a person of ordinary skill in the art at the time the invention was made, manipulating data in binary format instead of decimal format require only routine skill in the art.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any response to this final action should be mailed to:

Box AF

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or faxed to:

(703) 308-9051, (for formal communications; please mark "EXPEDITED
PROCEDURE")

Or:

(703) 308-6606 (for informal or draft communications, please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal
Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner
should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can
normally be reached on Monday-Thursday from 8:00 am to 5:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Mark Powell, can be reached on (703) 305-9703. The fax phone number for this Group is
(703)308-6606 .

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Group receptionist whose telephone number is (703)305-3900.

NTV

April 1, 1999


MARK R. POWELL
SUPERVISORY PATENT EXAMINER
GROUP 2700